

Workforce challenges

- Attract best and brightest to careers in environmental science & engineering
- Attract U.S. and minority students at both undergraduate and graduate levels
- Provide education in skills needed to meet future challenges

Complex Environmental Systems: *Synthesis for Earth, Life, and Society in the 21st Century*



Skills needed by environmental professionals

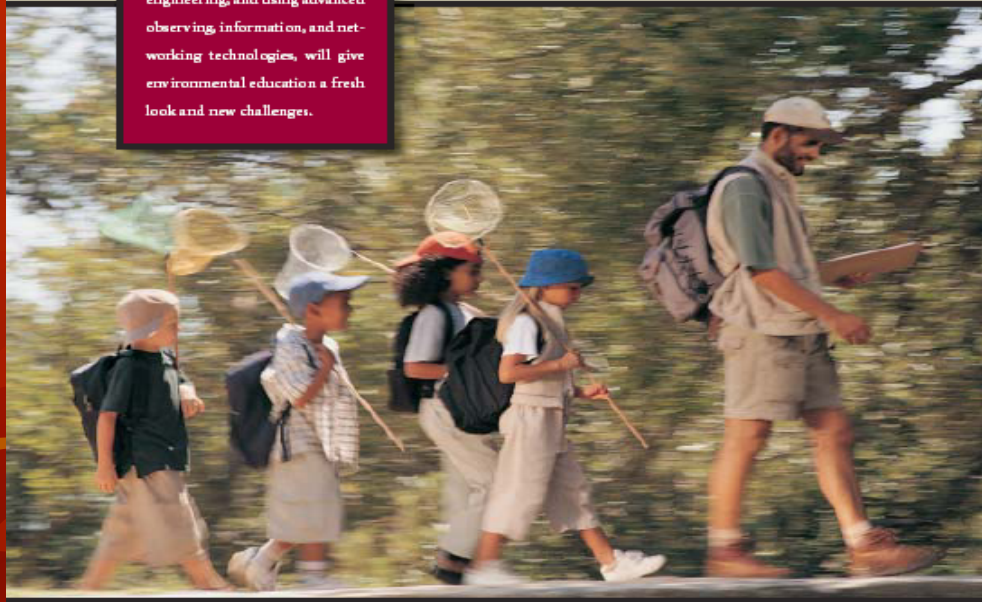
- Integrate across spatial, temporal, and organizational scales
- Draw from many disciplines
- Form effective partnerships among academic, governmental, and private organizations
- Use diverse datasets and approaches
- Communicate effectively among researchers, educators, students, resource and industrial managers, policy-makers, and the public

Environmental synthesis

- Integrated frameworks from which to raise new interdisciplinary research questions
- Integrated activities involving teams of scientists and engineers from a wide range of disciplines
- Merging diverse data, methods, and sources across spatial, temporal, and societal scales
- Accessible information for researchers, educators, students, resource and industrial managers, policy makers, and the public

“Environmental research and education requires not only understanding problems, but also developing a diverse work force to solve them....”

The trends toward integrating the environmental sciences and engineering, and using advanced observing, information, and networking technologies, will give environmental education a fresh look and new challenges.



Challenges in environmental education

- Strengthen innovative S&E in environmental education programs
- Understand how environmental education can help attract students to the S&E workforce
- Establish programs to broaden participation in environmental careers
- Develop networking technologies to promote collaborative learning among diverse teams and partners

Early implementation in environmental education

- Educational research
 - Environment as a teaching tool
 - Pathway to careers
- Non-traditional educational settings
 - Community colleges
 - Informal education

Implementation in FY04

- “EdEn Venture Fund” to add funds for education to existing proposals
 - Interdisciplinarity, complexity, and collaboration
 - Diverse settings, particularly urban
 - K-12 teachers
 - Outreach activities
- No application for new proposals

Tap into existing programs

- Biocomplexity in the Environment awards: education projects
- IGERT - Integrated Graduate Education Research Traineeships
- Science and Technology Centers: education and outreach components
- Biology and geology education programs for underrepresented groups

